

IN THE CLAIMS

The claims are amended as follows:

1. - 31. (canceled)

32. (currently amended) An X-ray detector assembly comprising:

a detector substrate having a plurality of contact pads;

a scintillator material disposed on a detector matrix array disposed on said detector substrate;

an encapsulating coating disposed on said scintillator material and disposed on and contacting a detector substrate first portion;

said encapsulating coating being disposed so as to not extend over a detector substrate second portion; and

a reflective layer disposed on said encapsulating coating;

a moisture resistant layer disposed on said reflective layer so as to terminate on said detector substrate second portion adjacent to said reflective layer;

said moisture resistant layer being disposed on said detector substrate second portion to provide a humidity barrier.

33. (original) The X-ray detector assembly as in claim 32, wherein said encapsulating coating comprises at least one polymer comprising para-xylylene moieties as structural units.

34. (original) The X-ray detector assembly as in claim 33, wherein said para-xylylene moieties are comprised of structural units of unsubstituted para-xylylene moieties.

35. (original) The X-ray detector assembly as in claim 33, wherein said para-xylylene moieties are comprised of structural units of substituted para-xylylene moieties.

36. (original) The X-ray detector assembly as in claim 33, wherein said para-xylylene moieties are comprised of structural units of both substituted and unsubstituted para-xylylene moieties.

37. (original) The X-ray detector assembly as in claim 32, wherein said encapsulating coating is selected from a group consisting of a mono-chloro-poly-para-xylylene material; a di-chloro-poly-para-xylylene material, a poly-para-xylylene material and combinations thereof.

38. (currently amended) The X-ray detector assembly as in claim ~~[33]~~32, encapsulating coating further comprising:

a first encapsulating coating tier disposed on said scintillator material and said detector substrate first portion;

an inner reflective tier disposed on said first encapsulating coating tier; and

a second encapsulating coating tier disposed on said inner reflective tier.

39. (original) The X-ray detector assembly as in claim 38, wherein:
said first encapsulating coating tier is selected from a group of a mono-chloro-poly-para-xylylene material, a di-chloro-poly-para-xylylene material, a para-xylylene material, and combinations thereof;

said inner reflective tier comprises silver (Ag);

said second encapsulating coating tier is selected from a group of said mono-chloro-poly-para-xylylene material, said di-chloro-poly-para-xylylene material, said para-xylylene material and said combinations thereof.

40. (original) The X-ray detector assembly as in claim 39, wherein:
said first encapsulating coating tier has a thickness in a range between about 0.7 microns and about 1 micron;
said inner reflective tier has a thickness in a range between about 0.05 microns and about 0.12 microns;
said second encapsulating coating tier has a thickness in a range between about 1 micron and 12 microns.

41. (original) The X-ray detector assembly as in claim 32, wherein said reflective layer is selected from a group consisting of silver (Ag), gold (Au), titanium dioxide (TiO₂), and a polyester film with a layer of a pressure sensitive adhesive, and combinations thereof.

42. (original) The X-ray detector assembly as in claim 41, wherein said reflective layer comprises a silver layer having a thickness in a range between about 0.05 microns and about 0.15 microns.

43. (original) The X-ray detector assembly as in claim 32, wherein said scintillator material comprises a cesium iodide (CsI) material being disposed in a CsI needle structure.

44. (original) The X-ray detector assembly as in claim 43, wherein said CsI needle structure further comprises a thallium doping material.

45. (currently amended) The X-ray detector assembly as in claim [33]32, X-ray detector assembly further comprising:
a protective cover;
a protective cover epoxy; and
a detector substrate third portion disposed on said detector substrate;

said protective cover is disposed over said moisture resistant layer and said detector substrate third portion;

said protective cover epoxy is disposed between said protective cover and said moisture resistant layer being disposed over detector substrate second portion; said protective cover epoxy is disposed between said protective cover and said detector substrate third portion;

said encapsulating coating being disposed so that it does not extend over said detector substrate third portion.

46. (original) The X-ray detector assembly as in claim 45, wherein said protective cover epoxy comprises a thermoset epoxy material with a curing temperature of less than about 100 degrees C.

47. (original) The X-ray detector assembly as in claim 32, said X-ray detector assembly further comprising:

a thin film mask disposed on said reflective layer;

said moisture resistant layer being disposed on said thin film mask.

48. (original) The X-ray detector assembly as in claim 47, wherein said thin film mask is selected from a group consisting of aluminum (Al), magnesium fluoride (MgF), diamond-like carbon, boron carbide (B_4C), boron nitride (BNO_2), silicon nitrate ($SiNO_3$), and silicon oxide (SiO).

49. (currently amended) The X-ray detector assembly as in claim [33]32, said X-ray detector assembly further comprising:

a corrosion protection layer;

said corrosion protection layer disposed on said moisture resistant layer so as to terminate on said detector substrate second portion adjacent to said moisture resistant cover.

50. (original) The X-ray detector assembly as in claim 49, wherein said corrosion protection layer is selected from a group consisting of gold (Au), acrylic, silicon nitrate (SiNO_3), silicon oxide (SiO), aluminum oxide (AlO), aluminum (Al), magnesium fluoride (MgF), diamond-like carbon, boron carbide (B_4C), boron nitride (BNO_2), at least one polymer comprising para-xylylene moieties as structural units, at least one polymer comprising structural units derived from unsubstituted, and at least one polymer comprising substituted para-xylylene moieties.

51. (original) The X-ray detector assembly as in claim 49, said X-ray detector assembly further comprising:

a protective cover;

a protective cover epoxy; and

a detector substrate third portion disposed on said detector substrate;

said protective cover is disposed over said corrosion protection layer and said detector substrate third portion;

said protective cover epoxy is disposed between said protective cover and said corrosion protection layer being disposed over detector substrate second portion; said protective cover epoxy is disposed between said protective cover and said detector substrate third portion;

said encapsulating coating being disposed so that it does not extend over said detector substrate third portion.

52. (currently amended) The X-ray detector assembly as in claim [33]~~32~~, further comprising:

a planarized adhesive layer disposed to contact said detector substrate at a detector substrate third portion; and

a protective cover; and

a protective cover epoxy;

said protective cover is disposed over said moisture resistant layer and said planarized adhesive layer;

said protective cover epoxy is disposed between said protective cover and said moisture resistant layer being disposed over detector substrate second portion; said protective cover epoxy is disposed between said protective cover and said planarized adhesive layer;

said encapsulating coating being disposed so that it does not extend over said planarized adhesive layer.

53. (original) The X-ray detector assembly as in claim 49, further comprising:

a planarized adhesive layer disposed to contact said detector substrate at a detector substrate third portion; and

a protective cover; and

a protective cover epoxy;

said protective cover is disposed over said corrosion protection layer and said planarized adhesive layer;

said protective cover epoxy is disposed between said protective cover and said corrosion protection layer being disposed over detector substrate second portion; said protective cover epoxy is disposed between said protective cover and said planarized adhesive layer;

said encapsulating coating being disposed so that it does not extend over said planarized adhesive layer.

54. (currently amended) The X-ray detector assembly as in claim [33]32, further comprising:

a planarized adhesive layer disposed to contact said detector substrate at a detector substrate third portion;

said moisture resistant layer being disposed on said reflective layer and said detector substrate second portion so as to terminate on a planarized adhesive layer bond area;

said moisture resistant layer, said planarized adhesive layer and said detector substrate third portion being disposed to provide a moisture resistant seal;

said encapsulating coating being disposed so that it does not extend over said planarized adhesive layer bond area.

55. (original) The X-ray detector assembly as in claim 54, said X-ray detector assembly further comprising:

a thin film mask disposed on said reflective layer;

said moisture resistant layer being disposed on said thin film mask and said detector substrate second portion so as to terminate on said planarized adhesive layer bond area.

56. (original) The X-ray detector assembly as in claim 54, said X-ray detector assembly further comprising:

a protective cover; and

a protective cover epoxy;

said protective cover is disposed over said moisture resistant layer and said planarized adhesive layer;

said protective cover epoxy is disposed between said protective cover and said moisture resistant layer being disposed over both said detector substrate second portion and said detector substrate third portion; said protective cover epoxy is disposed between said protective cover and said planarized adhesive layer.

57. (original) The X-ray detector assembly as in claim 54, said X-ray detector assembly further comprising:

a corrosion protection layer;

said corrosion protection layer disposed on said moisture resistant layer so as to terminate on said planarized adhesive layer bond area adjacent to said moisture resistant layer.

58. (original) The X-ray detector assembly as in claim 57, said X-ray detector assembly further comprising:

a protective cover; and

a protective cover epoxy;

said protective cover is disposed over said corrosion protection layer and said planarized adhesive layer;

said protective cover epoxy is disposed between said protective cover and said corrosion protection layer being disposed over both said detector substrate second portion and said detector substrate third portion; said protective cover epoxy is disposed between said protective cover and said planarized adhesive layer.

59. - 92. (canceled)

93. (new) An X-ray detector assembly comprising:

a detector substrate having a plurality of contact pads;

a scintillator material disposed on a detector matrix array disposed on said detector substrate;

an encapsulating coating disposed on said scintillator material and disposed on and contacting a detector substrate first portion;

said encapsulating coating being disposed so as to not extend over a detector substrate second portion;

a reflective layer disposed on said encapsulating coating;

a moisture resistant layer disposed on said reflective layer so as to terminate on said detector substrate second portion adjacent to said reflective layer;

said moisture resistant layer being disposed on said detector substrate second portion to provide a humidity barrier;

a protective cover;

a protective cover epoxy; and

a detector substrate third portion disposed on said detector substrate;

said protective cover is disposed over said moisture resistant layer and said detector substrate third portion;

said protective cover epoxy is disposed between said protective cover and said moisture resistant layer being disposed over detector substrate second portion; said protective cover epoxy is disposed between said protective cover and said detector substrate third portion;

said encapsulating coating being disposed so that it does not extend over said detector substrate third portion.

94. (new) An X-ray detector assembly comprising:

a detector substrate having a plurality of contact pads;

a scintillator material disposed on a detector matrix array disposed on said detector substrate;

an encapsulating coating disposed on said scintillator material and disposed on and contacting a detector substrate first portion;

said encapsulating coating being disposed so as to not extend over a detector substrate second portion;

a reflective layer disposed on said encapsulating coating;

a moisture resistant layer disposed on said reflective layer so as to terminate on said detector substrate second portion adjacent to said reflective layer; and

said moisture resistant layer being disposed on said detector substrate second portion to provide a humidity barrier;

a thin film mask disposed on said reflective layer;

said moisture resistant layer being disposed on said thin film mask.